



U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

**Certificate**  
AUG 29 2006  
**of Correction**  
AUG 29 2006



Docket No.: M4065.0697/P697-A  
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:  
John T. Moore et al.

Patent No.: 7,022,555

Issued: April 4, 2006

For: METHODS OF FORMING A  
SEMICONDUCTOR MEMORY DEVICE

REQUEST FOR CERTIFICATE OF CORRECTION  
PURSUANT TO 37 C.F.R. §§1.322 & 1.323

Attention: Certificate of Correction Branch  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Upon reviewing the above-identified patent, Patentees noted typographical and other errors which should be corrected.

In the U.S. Patents portion of the References Cited section, the PTO omitted the following two patents from the IDS dated July 15, 2004 (attached as ExhibitA, Page 1), which should be added:

4,673,957	6/1987	Ovshinsky et al.	08/25/2006 TBESHAH1 00000089 7022555 01 FC:1011	100.00 OP
5,335,219	8/1994	Ovshinsky et al.		

Patent No.: 7,022,555



Docket No.: M4065.0697/P697-A

In the Other Publications portion of the References Cited section, the PTO omitted the following, which should be added, as all other references on those IDSs were included in the printed patent. (See Exhibit A, pages 2 and 3):

U.S. Appl. No. 09/779,983, filed Feb. 2001, Moore.

U.S. Appl. No. 09/943,190, filed Aug. 2001, Campbell, et al.

U.S. Appl. No. 09/943,199, filed Aug. 2001, Campbell, et al.

U.S. Appl. No. 09/943,187, filed Aug. 2001, Campbell, et al.

U.S. Appl. No. 10/077,867, filed Feb. 2002, Campbell, et al.

U.S. Appl. No. 10/232,757, filed Aug. 2002, Li, et al.

On Exhibit A, Page 2, the six patents cited as Nos. AF through AK are included on the patent in the U.S. Patent Documents portion of References Cited. However, the PTO also listed them a second time on Page 7 of the Other Publications portion of References Cited, and they are listed, mistakenly as being applications instead of patents. They should be deleted:

U.S. Appl. No. 5,238,862, filed Aug. 1993, Blalock et al.

U.S. Appl. No. 5,360,981, filed Nov. 1994, Owen et al.

U.S. Appl. No. 5,761,115, filed Jun. 1998, Kozicki et al.

U.S. Appl. No. 5,896,312, filed Apr. 1999, Kozicki et al.

U.S. Appl. No. 5,914,893, filed Jun. 1999, Kozicki et al.

AUG 29 2006

U.S. Appl. No. 6,084,796, filed Jul. 2000, Kozicki et al.

In the Specification, the PTO made the following error to be corrected:

Column 2, line 16, "metal is ion" should read --metal ion--.

In Other Publications, the PTO made the following typographical errors to be corrected:

"Titus, S.S.K.; Chatterjee, R.; Asokan, S., Electrical switching and short-range order in As-Te glasses, Phys. Rev. B 48 (1992) 14650-14652."

Should read

--Titus, S.S.K.; Chatterjee, R.; Asokan, S., Electrical switching and short-range order in As-Te glasses, Phys. Rev. B 48 (1993) 14650-14652.--; and

"Hirose, et al., "Polarity-dependent memory switching and behavior of Ag dendrite in Ag-photodoped amorphous As<sub>2</sub>S<sub>3</sub> films". Journal of Applied Physics, vol. 47, No. 6, Jun. 1976, pp. 278-2772."

Should read

--Hirose, et al., "Polarity-dependent memory switching and behavior of Ag dendrite in Ag-photodoped amorphous As<sub>2</sub>S<sub>3</sub> films". Journal of Applied Physics, vol. 47, No. 6, Jun. 1976, pp. 2767-2772.--.

In Other Publications, Applicants made the following typographical errors to be corrected:

"Tranchant, S.; Peytavin, S.; Ribes, M.; Flank, A.M.; Dexpert, H.; Lagarde, J.P., Silver chalcogenide glasses Ag-Ge-Se: Ionic conduction and exafs structural investigation, Transport-structure relations in fast ion and mixed conductors Proceedings of the 6th Riso International symposium. Sep. 9-13, 1985."

Should read

--Tranchant, S.; Peytavin, S.; Ribes, M.; Flank, A.M.; Dexpert, H.; Lagarde, J.P., Silver chalcogenide glasses Ag-Ge-Se: Ionic conduction and EXAFS structural investigation, Transport-structure relations in fast ion and mixed conductors, Proc. of the 6th RISO Int'l Symp. Sep. 9-13, 1985.--; and

"Kotkata, M.F.; Afif, M.A.; Labib, H.H.; Hegab, N.A.; Abdel-Aziz, M.M., Memory switching in amorphous GeSeTe chalcogenide semiconductor films, Thin Solid Films 240 (1994) 143-146."

Should read

--Kotkata, M.F.; Afifi, M.A.; Labib, H.H.; Hegab, N.A.; Abdel-Aziz, M.M., Memory switching in amorphous GeSeTe chalcogenide semiconductor films, Thin Solid Films 240 (1994) 143-146.--.

A few of the errors were found in the application as filed by Applicants. Please charge our Credit Card in the amount of \$100.00 covering the fee set forth in 37 C.F.R. §1.20(a). Credit Card Payment Form SB-2038, with a signature from an authorized cardholder, is enclosed.

The errors now sought to be corrected are inadvertent errors the correction of which does not involve new matter or require reexamination.

Transmitted herewith is a proposed Certificate of Correction effecting such amendment. Patentees respectfully solicit the granting of the requested Certificate of Correction.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 04-1073, under Order No. M4065.0697/P697-A.

Dated: August 24, 2006

Respectfully submitted,

By 

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AUG 29 2006

# Exhibit A

JUL 15 2004



PTO/SB/08a/b (08-03)

Approved for use through 07/31/2008. OMB 0651-0031  
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Substitute for form 1449A/B/PTO

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

## Complete if Known

Application Number	10/774,515
Filing Date	February 10, 2004
First Named Inventor	John T. Moore, et al.
Art Unit	2845-2813
Examiner Name	Not Yet Assigned
Attorney Docket Number	M4065.0697//P697-A

Sheet	1	of	3
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## U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	A	US 2004/0035401	2/2004	Ramachandran et al.	
	B	US 2003/0212724	11/2003	Ovshinsky et al.	
	C	US 2003/0048744	3/2003	Ovshinsky et al.	
	D	US 2003/0212725	11/2003	Ovshinsky et al.	
	E	US RE 37,259E	7/2001	Ovshinsky	
	F	US 3,271,591	9/1966	Ovshinsky	
	G	US 3,961,314	6/1976	Klose et al.	
	H	US 3,966,317	6/1976	Wacks et al.	
	I	US 3,983,542	11/1976	Ovshinsky	
	J	US 3,988,720	10/1976	Ovshinsky	
	K	US 4,177,474	12/1979	Ovshinsky	
	L	US 4,267,261	5/1981	Hallman et al.	
	M	US 4,597,162	7/1986	Johnson et al.	
	N	US 4,608,296	8/1986	Keem et al.	
	O	US 4,637,895	1/1987	Ovshinsky et al.	
	P	US 4,646,266	2/1987	Ovshinsky et al.	
	Q	US 4,664,939	5/1987	Ovshinsky	
	R	US 4,668,968	5/1987	Ovshinsky et al.	
	S	US 4,670,763	6/1987	Ovshinsky et al.	
	T	US 4,673,957	6/1987	Ovshinsky et al.	
	U	US 4,678,679	7/1987	Ovshinsky	
	V	US 4,696,758	9/1987	Ovshinsky et al.	
	W	US 4,698,234	10/1987	Ovshinsky et al.	
	X	US 4,710,899	12/1987	Young et al.	
	Y	US 4,728,406	3/1988	Banerjee et al.	
	Z	US 4,737,379	4/1988	Hudgens et al.	
	A1	US 4,766,471	8/1988	Ovshinsky et al.	
	B1	US 4,769,338	9/1988	Ovshinsky et al.	
	C1	US 4,775,425	10/1988	Guha et al.	
	D1	US 4,788,594	11/1988	Ovshinsky et al.	
	E1	US 4,809,044	2/1989	Pryor et al.	
	F1	US 4,818,717	4/1989	Johnson et al.	
	G1	US 4,843,443	6/1989	Ovshinsky et al.	
	H1	US 4,845,533	7/1989	Pryor et al.	
	I1	US 4,853,785	8/1989	Ovshinsky et al.	
	J1	US 4,891,330	1/1990	Guha et al.	
	K1	US 5,128,099	7/1992	Strand et al.	
	L1	US 5,159,661	10/1992	Ovshinsky et al.	
	M1	US 5,166,758	11/1992	Ovshinsky et al.	
	N1	US 5,177,567	1/1993	Klersy et al.	
	O1	US 5,296,716	3/1994	Ovshinsky et al.	
	P1	US 5,335,219	8/1994	Ovshinsky et al.	
	Q1	US 5,359,205	10/1994	Ovshinsky	
	R1	US 5,341,328	8/1994	Ovshinsky et al.	
	S1	US 5,406,509	4/1995	Ovshinsky et al.	
	T1	US 5,414,271	5/1995	Ovshinsky et al.	

Exh. A - Page 1





PTO/SB/08a/b (07-05)

Approved for use through 07/31/2006. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

<b>Substitute for form 1449A/B/PTO</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)			<b>Complete If Known</b>		
			Application Number	10/774,515-Conf. #8694	
			Filing Date	February 10, 2004	
			First Named Inventor	John T. Moore	
			Art Unit	2813	
			Examiner Name	J. M. Dolan	
Sheet	1	of	1	Attorney Docket Number	M4065.0697/P697-A

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
	AA**	US-09/779,983	02-08-2001	Moore	
	AB**	US-09/943,190	08-29-2001	Campbell, et al.	
	AC**	US-09/943,199	08-29-2001	Campbell, et al.	
	AD**	US-09/943,187	08-29-2001	Campbell, et al.	
	AE**	US-09/732,968	12-08-2000	Gilton	
	AF**	US-5,238,862	08-24-1993	Blalock et al.	
	AG**	US-5,360,981	11-01-1994	Owen, et al.	
	AH**	US-5,761,115	06-02-1998	Kozicki et al.	
	AI**	US-5,896,312	04-20-1999	Kozicki et al.	
	AJ**	US-5,914,893	06-22-1999	Kozicki et al.	
	AK**	US-6,084,796	07-04-2000	Kozicki et al.	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>5</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)	MM-DD-YYYY			

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	CA**	Hirose, et al., "High Speed Memory Behavior and Reliability of an Amorphous As <sub>2</sub> S <sub>3</sub> Film Doped with Ag", July 17, 1980, pps. K187-K190.	
	CB**	Hirose, et al., "Polarity-dependent memory switching and behavior of Ag dendrite in Ag-photodoped amorphous As <sub>2</sub> S <sub>3</sub> films", Journal of Applied Physics, Vol. 47, No. 6, June, 1976, pps. 2767-2772.	
	CC**	Kawaguchi, et al., "Optical, electrical, and structural properties of amorphous Ag-Ge-S and Ag-Ge-Se films and comparison of photoinduced and thermally induced phenomena of both systems", Journal of Applied Physics, 79, June 1996, pps. 9096-9104.	
	CD**	Kluge, et al., "Silver photodiffusion in amorphous Ge <sub>2</sub> Se <sub>100</sub> " Journal of Non-Crystalline Solids 124 (1990) pps. 186-193.	
	CE**	Kolobov, A.V., "Photodoping of amorphous chalcogenides by metals", Advances in Physics, 1991, Vol. 40, No. 5, pps. 625-684.	
	CF**	Milkova, et al. "Dual Chemical Role of Ag as an Additive in Chalcogenide Glasses", Physical Review Letters, Vol. 83, No. 19, pps. 3848-3851.	
	CG**	Milkova, "Insulating and Semiconducting Glasses", Editor: P. Bookchand, World Scientific, New Jersey, 200, pps. 813-843.	
	CH**	Axon Technologies Corporation, TECHNOLOGY DESCRIPTION: Programmable Metalization	

Examiner Signature		Date Considered	
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U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICEATTY. DOCKET NO.  
MI22-1527SERIAL NO.  
09/797,635LIST OF ART CITED BY APPLICANT  
(Use several sheets if necessary)

AUG 24 2006

PATENT &amp; TRADEMARK OFFICE

APPLICANT: John T. Moore et al.

FILING DATE  
March 1, 2001GROUP  
2813

## U.S. PATENT DOCUMENTS

Examiner Initial	Document Number	Date	Title	Class	Subclass	Filing Date if Appropriate
AA	10/077,867		Campbell et al. (as filed) * *			02/20/2002
AB	10/232,757		Li, et al. * *			08/29/2002
AD			omitted			
AD						
AE						
AF						
AG						
AH						
AI						
AJ						
AK						

## FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AL							
	AM							

## OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)

AN		Owens et al., <i>Metal-Chalcogenide Photoresists for High Resolution Lithography and Sub-Micron Structures</i> , NANOSTRUCTURE PHYSICS AND FABRICATION, pp. 447-451 (Academic Press, 1989). * *
AO		Safran et al., <i>TEM study of Ag<sub>2</sub>Se developed by the reaction of polycrystalline silver films and selenium</i> , 317 THIN SOLID FILMS, pp. 72-76 (1998). * *
AP		Shimizu et al., <i>The Photo-Erasable Memory Switching Effect of Ag Photo-Doped Chalcogenide Glasses</i> , 46 BUL. CHEM. SOC. JAPAN, No. 12, pp. 3662-3665 (December 1973). * *

EXAMINER

DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 809; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**

Page 1 of 2

PATENT NO. : 7,022,555  
APPLICATION NO. : 10/774,515  
ISSUE DATE : April 4, 2006  
INVENTORS : John T. Moore et al.

It is certified that errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the U.S. Patents portion of the References Cited section, add the following two patents:

4,673,957                  6/1987                  Ovshinsky et al.

5,335,219                  8/1994                  Ovshinsky et al.

In the Other Publications portion of the References Cited section, add the following applications:

U.S. Appl. No. 09/779,983, filed Feb. 2001, Moore.

U.S. Appl. No. 09/943,190, filed Aug. 2001, Campbell, et al.

U.S. Appl. No. 09/943,199, filed Aug. 2001, Campbell, et al.

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U.S. Appl. No. 10/232,757, filed Aug. 2002, Li, et al.

Also in Other Publications, on page 7, delete the following:

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U.S. Appl. No. 5,360,981, filed Nov. 1994, Owen, et al.

U.S. Appl. No. 5,761,115, filed Jun. 1998, Kozicki, et al.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Thomas J. D'Amico  
DICKSTEIN SHAPIRO LLP  
1825 Eye Street, NW  
Washington, DC 20006-5403

1

U.S. Appl. No. 5,896,312, filed Apr. 1999, Kozicki et al.

U.S. Appl. No. 5,914,893, filed Jun. 1999, Kozicki et al.

U.S. Appl. No. 6,084,796, filed Jul. 2000, Kozicki et al.

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**Should read**

--Titus, S.S.K.; Chatterjee, R.; Asokan, S., Electrical switching and short-range order in As-Te glasses, Phys. Rev. B 48 (1993) 14650-14652.--;

"Hirose, et al., "Polarity-dependent memory switching and behavior of Ag dendrite in Ag-photodoped amorphous  $As_2S_3$  films". Journal of Applied Physics, vol. 47, No. 6, Jun. 1976, pp. 278-2772."

**Should read**

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In Other Publications, Applicants made the following typographical errors to be corrected:

"Tranchant, S.; Peytavin, S.; Ribes, M.; Flank, A.M.; Dexpert, H.; Lagarde, J.P., Silver chalcogenide glasses Ag-Ge-Se: Ionic conduction and exafs structural investigation, Transport-structure relations in fast ion and mixed conductors Proceedings of the 6th Riso International symposium. Sep. 9-13, 1985."

**Should read**

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"Kotkata, M.F.; Afif, M.A.; Labib, H.H.; Hegab, N.A.; Abdel-Aziz, M.M., Memory switching in amorphous GeSeTe chalcogenide semiconductor films, Thin Solid Films 240 (1994) 143-146."

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